

Claims:

1. Use of IL-18 binding protein (IL-18BP), or a mutein, functional derivative, fraction, circularly permuted derivative, fused protein, isoform and a salt thereof together with an IL-1 antagonist/inhibitor in the manufacture of a medicament for the treatment and/or prevention of an inflammatory disease.
- 5 2. The use according to claim 1, wherein the antagonist/inhibitor of IL-1 is selected from caspase-1 (ICE) inhibitors, antibodies against IL-1, antibodies against any of the IL-1 receptor subunits, inhibitors of the IL-1 signaling pathway, antagonists of IL-1 which compete with IL-1 and block the IL-1 receptor, IL-1 receptor antagonist (IL-1Ra) and IL-1 binding proteins, or an isoform, mutein, fused protein, functional derivative, active fraction or circularly permuted derivative thereof.
- 10 3. The use according to claim 2, wherein the IL-1 antagonist is IL-1 receptor antagonist (IL-1Ra).
4. The use according to claim 3, wherein the IL-1Ra is Kineret.
- 15 5. The use according to anyone of claims 1 to 3, wherein the IL-1 antagonist/inhibitor is selected from, antisense mRNAs, soluble IL-1 receptors, and IL-1R antibody.
- 20 6. The use according to anyone of claims 1 to 5, wherein the IL-18BP is PEGylated.
7. The use according to anyone of claims 1 to 5, wherein the inhibitor of IL-18 is a fused protein comprising all or part of an IL-18BP fused to all or part of an immunoglobulin, and wherein the fused protein binds to IL-18.
- 25 8. The use according to claim 7, wherein the fused protein comprises all or part of the constant region of an immunoglobulin.
9. The use according to claim 8, wherein the immunoglobulin is of the IgG1 or IgG2 isotype.
- 30 10. The use according to anyone of claims 1 to 9, wherein IL-18BP and the IL-1 antagonist/inhibitor are used simultaneously, or sequentially.

11. The use according to any of the preceding claims, wherein IL-18BP is used in an amount of about 0.0001 to 10 mg/kg of body weight, or about 0.01 to 5 mg/kg of body weight or about 0.1 to 3 mg/kg of body weight or about 1 to 2 mg/kg of body weight.
- 5 12. The use according to any of the preceding claims, IL-18BP is used in an amount of about 0.1 to 1000 mg/kg of body weight or 1 to 100 mg/kg of body weight or about 10 to 50 mg/kg of body weight.
- 10 13. The use according to anyone of the preceding claims, wherein the IL-1 antagonist/inhibitor is used in an amount selected from 0.0001 to 10 mg/kg or about 0.01 to 5 mg/kg or body weight, or about 0.01 to 5 mg/kg of body weight or about 0.1 to 3 mg/kg of body weight or about 0.5 to 2 mg/kg of body weight or about 1 mg/kg of body weight.
14. The use according to claim 13, wherein the IL-1 antagonist/inhibitor is used at about 1mg/kg of body weight.
15. The use according to any of the preceding claims, wherein IL-18BP is used for subcutaneous administration.
16. The use according to anyone of claims 1 to 14, wherein IL-18BP is used for intramuscular administration.
17. The use according to any of the preceding claims, wherein the IL-1 antagonist/inhibitor is used for subcutaneous administration.
- 20 18. The use according to anyone of claims 1 to 16, wherein the IL-1 antagonist/inhibitor is used for intramuscular administration.
19. The use according to any of the preceding claims, wherein IL-18BP used daily.
- 25 20. The use according to anyone of claims 1 to 18, wherein IL-18BP used three times per week.
21. The use according to anyone of claims 1 to 18, wherein IL-18BP is used once a week.
22. The use according to any of the preceding claims, wherein the IL-1 antagonist/inhibitor is used daily.

23. The use according to anyone of claims 1 to 21, wherein the IL-1 antagonist/inhibitor is used three times per week.
24. The use according to anyone of claims 1 to 21, wherein the IL-1 antagonist/inhibitor is used once a week.
- 5 25. A use of an IL-1 antagonist/inhibitor or an expression vector comprising the coding sequence of IL-1 antagonist/inhibitor and IL-18BP or an expression vector comprising the coding sequence of IL-18BP in the manufacture of a medicament for treatment and/or prevention of an inflammatory disease.
26. The use according to claim 25 for gene therapy.
- 10 27. A use of an IL-1 antagonist/inhibitor or a vector for inducing or enhancing the endogenous production of an IL-1 antagonist/inhibitor and IL-18BP or a vector for inducing or enhancing the endogenous production of IL-18BP in a cell in the manufacture of a medicament for the treatment and/or prevention of an inflammatory disease.
- 15 28. A use of an IL-1 antagonist/inhibitor or a cell that has been genetically modified to produce an IL-1 antagonist/inhibitor and IL-18BP or a cell that has been genetically modified to produce IL-18BP in the manufacture of a medicament for the treatment and/or prevention of an inflammatory disease.
29. The use according to anyone of claims 1 to 28, wherein the inflammatory disease is selected from rheumatoid arthritis, allergy, asthma, systemic lupus erythematosus (SLE), IBD, septic shock, and osteoarthritis.
- 20 30. The use according to claim 29, wherein the inflammatory disease is rheumatoid arthritis.
31. A pharmaceutical composition comprising a therapeutically effective amount of an antagonist/inhibitor of IL-1, or a mutein, functional derivative, fraction, circularly permuted derivative, fused protein, isoform and a salt thereof and a therapeutically effective amount of IL-18BP or a mutein, functional derivative, fraction, circularly permuted derivative, fused protein, isoform and a salt thereof.
- 25 32. The pharmaceutical composition according to claim 31, wherein the antagonist/inhibitor of IL-1 is IL-1Ra.

33. The pharmaceutical composition according to claim 32, wherein the IL-1Ra is Kineret.
34. A pharmaceutical composition comprising a therapeutically effective amount of an IL-1 antagonist/inhibitor or an expression vector comprising the coding sequence of IL-1 antagonist/inhibitor and IL-18BP or an expression vector comprising the coding sequence of IL-18BP.
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35. A pharmaceutical composition comprising a therapeutically effective amount of an IL-1 antagonist/inhibitor or vector for inducing and/or enhancing the endogenous production of an IL-1 antagonist/inhibitor and IL-18BP or a vector for inducing and/or enhancing the endogenous production of IL-18BP
10 in a cell.
36. A pharmaceutical composition comprising a therapeutically effective amount of an IL-1 antagonist/inhibitor or a cell that has been genetically modified to produce an IL-1 antagonist/inhibitor and IL-18BP or a cell that has been genetically modified to produce IL-18BP.
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37. A method of treatment and/or prevention of inflammatory disease comprising administering to a host in need thereof an effective inhibiting amount of IL-18BP, or a mutein, functional derivative, fraction, circularly permuted derivative, fused protein, isoform and a salt thereof and an IL-1 antagonist/inhibitor or a mutein, functional derivative, fraction, circularly permuted derivative, fused protein, isoform and a salt thereof.
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38. The method according to claim 37, wherein the antagonist/inhibitor of IL-1 is selected from caspase-1 (ICE) inhibitors, antibodies against IL-1, antibodies against any of the IL-1 receptor subunits, inhibitors of the IL-1 signaling pathway, antagonists of IL-1 which compete with IL-1 and block the IL-1 receptor, and IL-1 binding proteins, isoforms, muteins, fused proteins, functional derivatives, active fractions or circularly permuted derivatives
25 thereof having essentially the same activity as an IL-1 binding protein.
39. The method according to claim 38, wherein IL-1 antagonist is IL-1Ra.
- 30 40. The method according to claim 39, wherein the IL-1Ra is Kineret.

41. The method according to claims 37 or 38, wherein the antagonist/inhibitor is selected from, antisense mRNAs, soluble IL-1 receptors, and IL-1R antibody.
42. The method according to anyone of claims 37 to 41, wherein the IL-18BP is PEGylated.
- 5 43. The method according to anyone of claims 37 to 41, wherein the inhibitor of IL-18 is a fused protein comprising all or part of an IL-18BP fused to all or part of an immunoglobulin, and wherein the fused protein binds to IL-18.
- 10 44. The method according to claim 43, wherein the fused protein comprises all or part of the constant region of an immunoglobulin.
45. The method according to claim 44, wherein the immunoglobulin is of the IgG1 or IgG2 isotype.
46. The method according to anyone of claims 37 to 45, wherein IL-18BP and the IL-1 antagonist/inhibitor are administered simultaneously, or sequentially.
- 15 47. The method according to anyone of claims 37 to 46, wherein IL-18BP is administered in an amount of about 0.0001 to 10 mg/kg of body weight, or about 0.01 to 5 mg/kg of body weight or about 0.1 to 3 mg/kg of body weight or about 1 to 2 mg/kg of body weight.
48. The method according to anyone of claims 37 to 46, wherein IL-18BP is administered in an amount of about 0.1 to 1000 mg/kg of body weight or 1 to 20 100 mg/kg of body weight or about 10 to 50 mg/kg of body weight.
49. The method according to anyone of claims 37 to 48, wherein the IL-1 antagonist/inhibitor is administered in an amount selected from 0.0001 to 10 mg/kg or about 0.01 to 5 mg/kg of body weight, or about 0.01 to 5 mg/kg of body weight or about 0.1 to 3 mg/kg of body weight or about 0.5 to 2 mg/kg of body weight or about 1 mg/kg of body weight.
- 25 50. The method according to claim 49, wherein the IL-1 antagonist/inhibitor is administered at about 1mg/kg of body weight.
51. The method according to anyone of claims 37 to 50, wherein IL-18BP is administered subcutaneously.

52. The method according to anyone of claims 37 to 50, wherein IL-18BP is administered intramuscularly.
53. The method according to anyone of claims 37 to 52, wherein the IL-1 antagonist/inhibitor is administered subcutaneously.
- 5 54. The method according to anyone of claims 37 to 52, wherein the IL-1 antagonist/inhibitor is administered intramuscularly.
55. The method according to anyone of claims 37 to 54, wherein IL-18BP is administered daily.
- 10 56. The method according to anyone of claims 37 to 54, wherein IL-18BP is administered three times per week.
57. The method according to anyone of claims 37 to 54, wherein IL-18BP is administered once a week.
58. The method according to anyone of claims 37 to 57, wherein the IL-1 antagonist/inhibitor is administered daily.
- 15 59. The method according to anyone of claims 37 to 57, wherein the IL-1 antagonist/inhibitor is administered three times per week.
60. The method according to anyone of claims 37 to 57, the IL-1 antagonist/inhibitor is administered once a week.
61. A method of treatment and/or prevention of inflammatory disease comprising administering to a host in need thereof an effective inhibiting amount an IL-1 antagonist/inhibitor or an expression vector comprising the coding sequence of IL-1 antagonist/inhibitor and IL-18BP or an expression vector comprising the coding sequence of IL-18BP.
- 20 62. The method of treatment and/or prevention according to claim 61 for gene therapy.
63. A method of treatment and/or prevention of an inflammatory disease comprising administering to a host in need thereof an effective inhibiting amount of an IL-1 antagonist/inhibitor or a vector for inducing and/or enhancing the endogenous production of an IL-1 antagonist/inhibitor and of an IL-18BP or a vector for inducing and/or enhancing the endogenous production of IL-18BP in a cell.
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64. A method of treatment and/or prevention of an inflammatory disease comprising
5 administering to a host in need thereof an effective inhibiting amount of IL-1
antagonist/inhibitor or a cell that has been genetically modified to produce an
IL-1 antagonist/inhibitor and IL-18BP or a cell that has been genetically
modified to produce IL-18BP.

65. The method according to anyone of claims 61 to 64, wherein the
inflammatory disease is selected from rheumatoid arthritis, allergy, asthma,
systemic lupus erythematosus (SLE), IBD, septic shock, and osteoarthritis.

66. The method according to claim 65, wherein the inflammatory disease is
10 rheumatoid arthritis.

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